

Inclusive Growth in Sub-Saharan Africa: Do Financial Depth and Inclusion Matter?

Wytone Jombo

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Inclusive Growth in Sub-Saharan Africa: Do Financial Depth and Inclusion Matter?

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List of Abbreviations and Acronyms

| | |
|------|---|
| ADB | Asian Development Bank |
| AfDB | African Development Bank |
| ARDL | Autoregressive Distributed Lag |
| CGD | Commission on Growth and Development |
| CPI | Consumer Price Index |
| DFID | Department for International Development |
| GDP | Gross Domestic Product |
| GMM | Generalized Method of Moments |
| HDI | Human Development Index |
| ILO | International labour organization |
| IMF | International Monetary Fund |
| OECD | Organization for Economic Cooperation and Development |
| OLS | Ordinary Least Squares |
| PPP | Purchasing Power Parity |
| SSA | Sub-Saharan Africa |
| UNDP | United Nations Development Programme |
| WB | World Bank |
| WEO | World Economic Outlook |

Abstract

This study attempts to contribute to the existing literature by exploring the effect of financial inclusion and depth on inclusive growth for 26 sub-Saharan Africa countries. Using the random effects panel regressions, the results suggest that financial inclusion positively affects inclusive growth in the sub-Saharan region, while financial depth variable does not. At very high levels of financial inclusion, however, the results portray decreasing marginal effects of financial inclusion on inclusive growth. Evidence from this study, however, shows weak transmission channel from financial deepening indicators to inclusive growth. The study recommends more financial inclusion drives, particularly those where the levels of financial inclusion are still low and significant to inclusive growth.

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1.0 Introduction

This paper attempts to investigate whether financial inclusion matter for inclusive growth in sub-Saharan African (SSA) countries. Until recently, the key arguments in the finance-growth literature were on whether finance leads to economic growth or vice versa. As clearly summarized by Murinde (2012), the literature is oversupplied with literature either in support or indeed opposing the role of finance in economic growth. For example, in support of the role of finance to economic growth includes the works of Lucas (1988: 6) who registered serious misgivings about the finance-growth nexus and suggested that finance was an overrated determinant of economic growth. Other economists with similar views include Robson (1952) and Miller (1998). On the other hand, economists that have recognized the importance of finance in economic growth include Bagehot (1873), Schumpeter (1912), Goldsmith (1969) and McKinnon (1973). However, recent evidence found by Law and Singh (2014) suggests that there is a threshold effect in the relationship between finance and economic growth. This evidence suggests that the level of financial development is beneficial to economic growth only up to a certain point or threshold beyond which additional financial development negatively affect economic growth.

Recent works in this area, however, are questioning the comprehensiveness of economic growth as a measure of national progress. The argument is that growth must be inclusive such that all segments of the society can benefit from economic expansion. It is claimed that economic growth has failed to trickle down to the poor and that high economic growth might be meaningless to the majority of a society if there are high levels of inequality. Perhaps this is the reason OECD (2018) defines inclusive growth as economic growth that creates opportunity for all segments of the population and distributes the dividends of increased prosperity, both in monetary and non-monetary terms, fairly across society, and that inclusive growth is sustainable and effective in reducing poverty. While literature for the past century has focused on the relationship between financial development and GDP based economic growth, this study intends to depart from the previous studies by establishing whether finance has an effect on inclusive growth—growth associated with equitable opportunities for economic participants during economic growth with benefits incurred by every section of society.

Specifically, this study contributes to the existing literature in two ways. Firstly,

the study uses unified measures of inclusive growth to establish the existence of a relationship between finance and inclusive growth. Two alternative measures of inclusive growth are used in this study. The first measure uses suitable indicators of inclusive growth, namely, growth, employment, economic infrastructure, income inequality and equity including gender equity human capabilities and governance to compute an inclusive growth index soliciting key insights from the World Bank, OECD, ADB and AfDB. The study also uses the United Nations' Human Development Index as an alternative measure of inclusive growth to check if the results will still be consistent. Clearly, the use of broader measures of inclusive growth—unlike single indicator measure—will provide a relevant addition to the literature on how other important elements of wellbeing are influenced by inclusive finance. Secondly, the study will establish whether too much finance is problematic to inclusive growth. Specifically, the study will establish whether there is a threshold beyond which additional financing would be detrimental to inclusive growth in sub-Saharan Africa, motivated by Law and Singh (2014) who—in a related but different study—found that there is a threshold effect in the relationship between finance and economic growth.

Objectives of the study

This study will attempt to establish whether finance matter for inclusive growth in sub-Saharan Africa.

Specifically, the study will respond to the following questions:

- Does financial inclusion matter for inclusive growth in SSA?
- Does the size of financial sector matter for inclusive growth in SSA?
- Is there a threshold of finance beyond which it would be detrimental to inclusive growth?

The rest of the paper is organized as follows: We discuss literature in Section 2, while methodology and data issues are discussed in Section 3. Section 4 discusses the results, while Section 5 provides conclusion and policy recommendations.

2.0 Literature review

Conceptualization of inclusive growth

Inclusive growth is a concept that originates from the debate around sustainable poverty reduction (Stuart, 2011), and it has different conceptualizations (Klasen, 2010). As early as 2000, the term ‘inclusive’ was in use to characterize pro-poor growth as participatory growth (Kakwani and Pernia, 2000). In this respect, pro-poor growth is the immediate predecessor of the current thinking on inclusive growth. Pro-poor growth has two main sub-concepts: the relative and the absolute. Kakwani and Pernia (2000), on the one hand, put emphasis on the relative concept, in which the incomes of the poor are expected to grow faster than those of the non-poor, or of average income. Ravallion (2004), on the other hand, supports the absolute notion of pro-poor growth, suggesting that what matters is the improvement in the absolute incomes of the poor as the economy grows, irrespective of changes in inequality. However, while pro-poor growth concerns itself only with the behaviour of those whose welfare falls below the poverty line, inclusive growth is rather more general, encompassing everyone in the entire welfare distribution (DFID, 2004). The debate around inclusive growth has evolved and has been led largely by policy debates in emerging countries (Ngepah, 2017). Multilateral, international and regional governmental organizations and NGOs have played a key role in promoting the concept (OECD, 2014; AfDB, 2015), including the World Bank (WB), Asian Development Bank (ADB), the African Development Bank (AfDB), the Organization for Economic Cooperation and Development (OECD) and the United Nations Development Programme (UNDP). These organizations have varying, but related, conceptualizations and approaches of inclusive growth.

The World Bank approach

The World Bank approach requires growth to be rapidly paced, broad-based across all economic sectors and inclusive of a large part of a country’s labour force (Ianchovichina and Lundstrom, 2009). The approach links the macro and micro determinants of economic growth. It is consistent with the findings of the Commission on Growth and Development (CGD, 2008) in which inclusiveness – embracing the equity, equality of opportunity and social protection – underlies a successful growth strategy. Another pillar of this approach is the fact that inclusive growth assumes

a long-term perspective once the emphasis is placed on productive employment as opposed to short-term income redistribution. In this sense, inclusive growth is characterized by a labour-absorbing growth, and increasing productivity of those already employed.

The Asian Development Bank (ADB) approach

The ADB approach to inclusive growth is more encompassing (Kanbur & Rauniar, 2009). It includes aspects of broad participation and contribution to the growth process characterizing inclusive growth, gender, ethnicity and race. The approach further defines inclusive growth as accompanied by equality of opportunity and environmentally sustainable growth as a determining factor of inclusive growth.

The OECD approach

The OECD's approach to inclusive growth rests on three broad foundations—multidimensionality, distributional considerations and policy impact (OECD, 2016). The multidimensionality pillar suggests moving beyond GDP-based measures of growth and GDP per capita based measures to embrace other important dimensions of people's wellbeing that allow them to productively participate in the economy and society, including social relations and satisfaction. The distributional pillar also requires analyses of distribution to go beyond (per capita) income to consider the distributions of the multidimensional wellbeing.

The African Development Bank (AfDB) approach

The AfDB noted that, despite robust economic growth, Africa has become increasingly unequal. Its approach to inclusive growth is, therefore, based on the consensus that rapid, sustainable economic growth in Africa must also be equitable for sustained poverty reduction (Stuart, 2011; AfDB, 2012). The AfDB defines inclusive growth as economic growth that results in a wider access to sustainable socioeconomic opportunities for a broader number of people, regions or countries, while protecting the vulnerable, all being done in an environment of fairness, equal justice, and political plurality (AfDB, 2012). In adopting such a definition, the AfDB comes close to the World Bank definition.

The UNDP approach

According to UNDP, inclusive growth typically refers to equity with growth or to broadly shared prosperity resulting from economic growth (UNDP, 2017). The understanding is that apart from poverty reduction, the concept of inclusive growth needs to be

widened beyond a concern of extreme poverty. China and Vietnam are some of the examples of countries, according to UNDP, that experienced rising income inequality despite progress on reducing absolute poverty and increasing economic growth. Therefore, the focus of development policy should be shifted to determining how growth can be made more equitable and more inclusive. UNDP somewhat supports the relative concept of pro-poor growth which has the capabilities of both improving the plight of the poor and narrowing the inequality gaps.

Table 1: Aspects of inclusive growth: A summary

| | |
|------------------------|--|
| World Bank | Productive employment, equity and equality. |
| Asian Development Bank | Sustainable economic growth, employment, access to economic opportunities, gender. |
| OECD | Employment, poverty reduction. |
| AfDB | Poverty reduction, equitable growth. |
| UNDP | Reducing inequality, equitable growth, relative pro-poor growth. |

In summary, Table 1 shows, the variety of conceptualizations of inclusive growth as described above suggests that the concept of inclusive growth is still both nascent and not easy to define. Despite different conceptualizations of inclusive growth, however, all of them have attempted to define inclusive growth as a multi-faceted measure of growth. The difficulty in definition arises due to the urge to make the concept as inclusive as possible and as broad as possible. It has been necessary to do so to make definition of inclusive growth depart from simple economic growth as measured by GDP growth. While it is generally agreed that inclusive growth is the growth that is broad-based, reduce inequalities, ensures majority access to social amenities and increase participation of population in the labour force, there is no consensus on how it should be measured. Even in few instances of consensus, it has proven to be more challenging to measure some aspects of inclusive growth. It is not surprising therefore that literature presents various suggestions on how inclusive growth should be measured. The choice of one measurement technique over the other is influenced by data availability and its appeal to have captured important features of inclusive growth. From the above discussion, employment, poverty reduction, sustainable and equitable growth, and access to social and economic opportunities come out strongly as important components of inclusive growth. This suggests that meaningful national progress and growth is expected to be reflected in these components. Moreover, if economic growth is strong without affecting positively on equality, poverty indicators and employment, such type of growth could not be said to be inclusive.

Financial inclusion and inclusive growth: Theoretical perspectives

Kim (2016) defines financial inclusion as the access to different financial products and services or as the proportion of enterprises and individuals who use these services. Discussions on financial inclusion have been associated with financial access and use. Demirguc-Kunt et al. (2013) suggest that by promoting financial inclusion, we help address and reduce inequalities, thereby reducing poverty and improving economic development. Precisely, Dermirguc-Kunt et al. (2017) suggests that financial inclusion can help reduce poverty and inequality by helping people invest in the future, smooth their consumption, and manage financial risks. This is collaborated by an earlier argument by DFID (2004) that suggested that financial inclusion could affect economic development positively at the household, firm, and national levels by increased financial access through effective financial inclusion programmes. In particular, DFID (2004) is arguing that financial inclusion can facilitate a greater level of investment by households to improve their assets, which is associated with productivity and can increase household income in the future.

Claessens and Perotti (2007) suggest that financial inclusion increases the amount of funds being made available and reduces borrowing costs and hence capital should increase. Access and use of formal financial services allow people to make financial transactions more efficiently and safely and helps poor people climb out of poverty by making it possible to invest in education and business. By providing ways to manage income shocks like unemployment, financial inclusion can also prevent people from falling into poverty in the first place. This is especially relevant for people living in the poorest households.

Theoretically, financial inclusion has poverty and inequality reducing effects through investment, financial transaction efficiency and managed financial risks. Through financial inclusion, people living in poverty or in marginalized groups are offered a set of financial instruments and services to run their businesses, stabilize consumption and shield themselves from adverse shocks (Corrado & Corrado, 2017). It is easy to see that financial inclusion is able to influence flagship elements of inclusive growth, namely, employment, equality and poverty reduction. Sen (2000) suggests that economic exclusion, considered as one of the forms of social exclusion, means lack of access to labour markets, credit availability and other forms of capital assets. Financial exclusion is an extended form of economic exclusion depriving people of credit, income and utilization of this credit and income to build capital assets further limiting their living opportunities in the mainstream economy. Being excluded from the opportunity to be employed or to receive credit may lead to economic impoverishment that may, in turn, lead to other deprivations (such as undernourishment or homelessness).

In contrast, some theories predict that finance primarily helps the rich and perpetuates inequality. According to this view, the poor rely on informal, family connections for capital, such that improvements in the formal financial sector exceedingly benefit the rich. Greenwood and Jovanovic (1990) developed a model that predicts a nonlinear relationship between financial development, income inequality and economic development. According to this model, at all stages of economic development, financial development improves capital allocation, boosts aggregate growth and helps the poor through this channel. However, the distributional effect of financial development, and hence the net impact on the poor, depends on the level of economic development. At early stages of development, only the rich can afford to access and directly profit from better financial markets. At higher levels of economic development, many people access financial markets so that financial development directly helps a larger proportion of society, including the poor.

Determinants of inclusive growth: The empirical evidence

Not many studies have attempted to analyse the relationship between financial inclusion and inclusive growth in the literature. In the few studies done on the inclusive growth subject, we attempt to discuss the major determinants of inclusive growth. A number of macroeconomic fundamentals and structural factors are found to be drivers of inclusive growth in the literature. Anand et al. (2013) established that trade openness, fixed investment, foreign direct investment, moderate inflation and output volatility, and a better educated workforce have helped in emerging markets to achieve more inclusive growth. Their study integrated equity and economic growth as a unified measure of inclusive growth based on a utilitarian social welfare function where inclusive growth is a function of income growth and income distribution. Panel regressions of inclusive growth were utilized on a broad sample of emerging countries to establish proximate determinants of inclusive growth. Their findings further suggest that credit-to-GDP ratio, has a negative impact on inclusive growth but not statistically significant. While the study considered the growth in income as an important factor for measurement of inclusive growth, it correctly includes aspects of income distribution and equity. This is in the spirit of making inclusive growth a more broad-based measure of national progress as proposed by UNDP and others.

Aoyagi and Ganelli (2015) found that the unemployment rate, the difference between the Gini coefficients for market and net inequality—which captures the impact of fiscal redistribution, the CPI inflation rate, GDP volatility, productivity, trade openness and the lag of GDP per capita as determinants of inclusive growth in Asia and South America. The study did not consider any measure of financial development as a determinant of inclusive growth. This study used the inclusive growth measure developed by Anand et al. (2013). By estimating a structural model for a panel of 31 countries selected on the basis of data availability, results suggest that redistributive fiscal policy and monetary policy aimed at macro stability are effective in fostering

inclusive growth. Further, the results suggest that monetary policy aimed at macro stability, and structural reforms to stimulate trade, reduce unemployment, and increase productivity are important determinants of inclusive growth.

Using Autoregressive Distributed Lag (ARDL) estimation technique, evidence from Khan et al. (2016) suggests that, in Pakistan, macroeconomic stability and financial deepening are important determinants to enhance inclusive growth, while reforms in trade sector are required to increase their efficiency in terms of inclusiveness. The study concluded that better financial system, improvement in the skill level to take benefit from international trade, and maintaining macroeconomic stability by stabilizing inflation leads to inclusive growth. This study uses an inclusive growth measure following the Asian Development Bank (McKinley, 2010) methodology. This methodology of computing inclusive growth entails applying weights to economic growth, productive employment, economic infrastructure, poverty, equity (including gender), human capabilities and social protection. The strength of this technique is its ambition to be as broad as possible. However, the weighting schemes involve expert judgment, which may vary from one expert to another.

Cabeza-García et al. (2019) uses an instrumental variable analysis on a sample of 91 countries, comprising both developed and emerging countries, to find evidence that greater financial inclusion of women, measured as access to a bank account and access to credit cards, has a positive effect on inclusive economic development. The study uses GDP per capita as a proxy for inclusive economic development. The analysis takes endogeneity into account by means of using lagged values which are traditionally considered as instrumental variables.

The reviewed literature points to important role of financial inclusion on inclusive growth. The role of financial deepening to inclusive growth is rather mixed, with others finding positive and significant impact while others find no effect at all. This is rather expected particularly that the results are bound to be sensitive to how the inclusive growth has been measured and also the type of countries included in the sample. The results from this study will add to the existing literature in this area with focus on the sub-Saharan African region.

Financial inclusion and inclusive growth in the sub-Saharan Africa

The financial inclusion in the region remains low but improving (see Table 2). It is even lower than the average financial inclusion ratio of all developing countries together. For example, as at 2011, only 23% of the SSA population had an account (by themselves or together with someone else) at a bank or another type of financial institution or report personally using a mobile money service. Although this has improved to 43% in 2017, it is still lower than an average of 42% and 63% in 2011 and 2017, respectively, recorded from all developing countries. It can easily be observed that as of 2017, average proportion of financial inclusion for developing countries, excluding SSA, was higher than 63%—suggesting a yawning gap between SSA and

the rest of the developing countries. Between 2011 and 2017, males are consistently more financially included than females with gaps at 26% and 21% in 2011 and 48% and 37% in 2017, respectively. Statistics also suggest that, despite having about one-third of the population having accounts domiciled at a financial institution by 2017, only 15% save at such institutions, and indeed just 7% borrow from the financial institutions.

Economic growth slowed down between 2011 and 2017 due to rising idiosyncratic factors in the region's largest economies, including commodity prices shocks. GDP per capita in the sub-Saharan region is less than half of combined average GDP per capita for the developing countries, and this is consistent from 2011 to 2017. Investment remained relatively stable between 2011 and 2017. The Human Development Index (HDI), which is summary measure of achievements in three key dimensions of human development – a long and healthy life, access to knowledge and a decent standard of living– also remained relatively stable but consistently fell short of the developing countries averages across 2011-2017.

This also shows that the rest of the developing countries, excluding sub-Saharan Africa region, have an average much higher than the combined average, suggesting a considerable gap between them.

Table 2: Financial inclusion in SSA, 2011-2017

| Financial Access | Sub-Saharan Africa | | | Developing Countries | | |
|---------------------------------------|--------------------|-------|-------|----------------------|-------|-------|
| | 2011 | 2014 | 2017 | 2011 | 2014 | 2017 |
| (as % of population, age 15+ | | | | | | |
| Account (including mobile money) | 23 | 34 | 43 | 42 | 55 | 63 |
| Financial institution account | 23 | 29 | 33 | 42 | 54 | 61 |
| Saved at a financial institution | 14 | 16 | 15 | 17 | 22 | 21 |
| Borrowed from a financial institution | 5 | 6 | 7 | 8 | 9 | 9 |
| Borrowed from family or friend | 40 | 42 | 31 | 26 | 29 | 29 |
| Gross Domestic Product Growth, % | 5.3 | 5.1 | 2.8 | - | - | - |
| GDP per capita, \$1000 | 1.8 | 1.9 | 1.6 | 4.2 | 4.7 | 4.7 |
| Investment, % of GDP | 20.7 | 22.6 | 21.2 | - | - | - |
| Human Development Index | 0.505 | 0.518 | 0.539 | 0.649 | 0.660 | 0.683 |

Sources: (i) World Bank's FINDEX (ii) UNDP's Human Development Report (2011), (2015), (2019) (iii) IMF WEO database.

From the statistics in Table 2, it is clear that the SSA region, which is the focus of this study, has low financial inclusion, low human development levels and low income per

capita. As it has been observed, this is true even compared to its peers of developing countries status globally.

These revelations provide additional basis for conducting this study. The studies that have been reviewed above on this topic were either conducted in advanced economies or a mixture with other developing countries. No study has exclusively paid attention to SSA region to explore the possible relationship of financial inclusion and inclusive growth—in a region where income is low, high poverty levels, and indeed low levels of financial inclusion.

3.0 Data and methodology

Methodology for constructing an inclusive growth index

The literature is not reaching an outright consensus on how inclusive growth should be measured. The jury is still out on which components should constitute inclusive growth. We have noted different views by international institutions like UNDP, OECD, ADB, AfDB and the World Bank on what inclusive growth should include. It is an endless debate. This study has reviewed these proposals and selected key elements that will be used to construct an inclusive growth index using a methodology proposed by Asian Development Bank Working Paper by McKinley (2010). In general, we will use Equation 1 to construct the index using the following components: level of employment (according to the World Bank, OECD, ADB, UNDP), poverty levels (OECD, AfDB), access to economic and social opportunities (ADB), and income and life expectancy (OECD). The computation of the index will involve computation of a weighted mean of the standardized values of each indicator. Since this is a cross-country study, the derivation of weights of the indicators in the overall index has largely benefited from the expert judgement of the author.

$$\text{Inclusive Growth} = \sum_{i=1}^m (\sum_{j=1}^n U_R * w_j) * W_i \quad (1)$$

Where,

U_R is the standardized single index score,

w_i is the weight of single sub-indicator in a particular layer,

W_i is the dimensional layer weight.

The procedure:

1. We assume the evaluation dimension collection of inclusive growth index is $U = \{u_1, u_2, u_3, \dots, u_n\}$ evaluation area collection is $U = \{u_{j1}, u_{j2}, u_{j3}, \dots, u_{jn}\}$ and evaluation index collection is $U = \{u_{j11}, u_{j21}, u_{j31}, \dots, u_{jim}\}$ where j refers to evaluation dimension, i is evaluation area and m is evaluation indicator.
2. We set target weight. Weight is the proportion of each indicator in the collection, reflecting the importance of each indicator. Assume the weight is W , $W = \{w_1, w_2, w_3, \dots, w_i\}$.
3. We conduct univariate standardization. After building the evaluation indicators,

we conduct quantitative evaluation of indicators one by one. After that, we have a matrix R . $U_R = \{r_{111}, r_{112}, \dots, r_{11m}\}$.

4. Weighted sum to have inclusive growth index (IG).

Table 3 summarizes the construction of the index.

Table 3: The weighting procedure of inclusive growth indicators

| Dimension Index | | Subcomponents Index | | Indicators | |
|---|--------|--------------------------------------|--------|--|--------|
| | Weight | | Weight | | Weight |
| Economic Growth, | | Economic growth (U11) | 0.2 | GDP per capita growth rate (U111) | 0.2 |
| Employment, | 0.45 | Employment (U12) | 0.15 | Employment in industrial sector U(121) | 0.15 |
| and Infrastructure (U1) | | | | Employment in industrial sector U(122) | 0.05 |
| | | Infrastructure (U13) | 0.1 | Energy use (U131) | 0.05 |
| Inequality, Poverty and General Equity (U2) | 0.25 | Income inequality (U21) | 0.1 | Gini index (U211) | 0.1 |
| | | Poverty (U22) | 0.1 | Poverty headcount ratio at \$2 a day (PPP) (U221) | 0.1 |
| | | Gender equity (U23) | 0.05 | Ratio of female to male labour force participation rate (U231) | 0.05 |
| Accessibility (U3) | 0.2 | Education (U31) | 0.07 | Primary school enrolment (U311) | 0.07 |
| | | Health (U32) | 0.07 | Mortality rate, under five (u321) | 0.07 |
| | | Access to water and sanitation (U33) | 0.06 | Improved water Source (U331) | 0.03 |
| | | | | Improved sanitation facilities (U332) | 0.03 |
| Governance (U4) | 0.1 | Governance (U41) | 0.1 | Corruption perception index (411) | 0.1 |

Adapted from Khan (2012)

The econometric model

The study estimates a random effects panel regression model using annual data on selected 26 countries in sub-Saharan Africa between 2011 and 2017. Clark and Linzer (2015) argue that the most common objection to the use of random effects is the so-called violation of a “critical” modelling assumption: that the regressor and the unit effects are uncorrelated. However, they mitigate this objection by further arguing that the objection turns out to be an insufficient justification to prefer fixed over random effects. Specifically, their argument is that this condition will hold only

under exceptional circumstances, and their simulations demonstrated that even in the presence of rather extreme violations of that assumption, the random-effects estimator can still be preferable to (or at least no worse than) the fixed-effects estimator. Moreover, fixed effects models only estimate within effects—they cannot suffer from heterogeneity bias; however, this comes at the cost of being unable to estimate the effects of higher-level processes, so random effects is often preferred where the bias does not exist (Bell & Jones, 2014). To test for the existence of such bias, the Hausman test is used. Hausman test is regularly used to test whether random effects can be used, or whether fixed effects estimation should be used instead (Greene, 2012).

We specify the following model which will be tested for heterogeneity bias which will guide us to use whether random effects or fixed effects estimations:

$$IG_{i,t} = \beta_0 + \phi FD_{i,t} + \lambda X_{i,t} + \eta_c \eta_c + \gamma_t + u_{it}, i=1, 2, \dots, N; t=1, 2, \dots, T \quad (2)$$

Here, IG_{it} is a measure of inclusive growth for country i during time period t , FD_{it} represents a vector variables for financial inclusion variables for country i during time period t , and X_{it} is a vector of control variables for country i during the period t . For the Hausman test, we estimate Equation 2 using both random effects and fixed effects estimation methods and test the null hypothesis:

Ho: difference in coefficients not systematic
 HA: difference in coefficients is systematic

And the result was that $\text{prob} > \chi^2 = 0.0805$, suggesting that random effects regression would be appropriate at 5% level of significance.

Data and measurement

Dependent variables

The dependent variable in this study is inclusive growth index. Inclusive growth index is measured as a weighted average of standardized indicators or components. The details on computation are in the foregoing subsection. We will also use Human Development Index (HDI), computed by UNDP, as another measure of inclusive growth and this measure will be used as part of robustness check. In principle, (HDI) is a summary measure of achievements in three key dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions (UNDP Human Development Report, 2019). It is easy to note that HDI has key components of inclusive growth as suggested in the literature. For example, income and long-life

components are proposed by OECD, access to education is also being proposed by ADB. This study will, therefore, use this measure as an alternative measure of inclusive growth.

Explanatory variables

The main explanatory variable in this study is financial inclusion. However, the way financial inclusion should be measured has sparked some debate in the literature. Three dimensions of financial inclusion are considered in the literature: access, use and quality (Demirguc-Kunt & Klapper, 2012; Sahay et al., 2015; World Bank, 2014). Generally, access points to the dispersion and permeation of the financial services in a country or region, use measures whether people are using the services, and quality measures the reliability, usefulness and efficiency of a financial service. While earlier cross-country studies in this area used mere availability of financial services like number of branches in an area or per a given population as a proxy to financial inclusion (due to lack of data), recent studies are using actual use of the financial services, like proportion of accounts holders, to measure financial inclusion as some data is becoming available in the recent years. Perhaps this is why the World Bank, in its global financial development report of 2014, defined financial inclusion as the proportion of individuals and firms that use the financial services. Indeed, the use of financial services should be different from access to financial services because one's accessibility to a financial service does not guarantee actual subscription to the service. This study uses measures of financial inclusion for both use and access. Financial use is measured by the proportion of account holders above the age of 15 years with financial institution or mobile money operator, proportion of account holders above 15 years who are females and proportion of account holders who borrowed from a financial institution in the previous 12 months. We will also use some financial access variables including the number of commercial bank branches per square kilometre and number of commercial bank branches per 100,000 adults. The IMF has created an index that captures these variables as financial institutions access index. The size of the financial sector or financial deepening is measured in different ways in the literature. In this study, financial deepening is measured by credit to the private sector as a per cent of gross domestic product.

In terms of control variables, we use macroeconomic variables such as investment, volume of trade and inflation. These are standard control variables in similar studies, for example, Anand et al. (2013), Barro (2013) and Dollar and Kraay (2004). The study will also control for type of country by level of income using the World Bank country classification. It is expected that all the control variables, except inflation, will have a positive sign. A value of 1 is used for middle income countries and zero otherwise. This control variable is important because the literature suggests that economic behaviour of each country may differ depending on its level of development, geographical location and culture (Kraay, 2004). Since this is a cross-country panel analysis, we add year dummies to remove unwarranted influence of aggregate trends which would

not have anything to do with causal relationship. The study covers 26 countries in the sub-Saharan Africa region, selected primarily on the basis of data availability and covers the period 2011-2017. The analysis period has primarily been motivated by the availability of use of financial services in the World Bank's FINDEX database. Other data sources are IMF's Financial Access, World Economic Outlook (WEO) database, International Labour Organization (ILO) and UNDP's Human Development Report database.

4.0 Results

Descriptive statistics

Table 4 shows that access to a financial institution positively correlates with ownership of accounts and credit to private sector at 5% significance level. Also, level of investment is positively correlated with access to a financial institution but negatively correlated with inflation. These strong correlation relationships were expected among these variables. Since these are independent variables, we might just take caution in using them concurrently during estimation. However, in multiple regressions, as long as there are no exact linear relationships among the independent variables, they can be estimated together (Wooldridge, 2019).

Table 4: Correlation matrix

| Variables | With Accounts | Private Credit | Fin. Inst. Access | Inflation | Trade | Investment |
|-------------------|---------------|----------------|-------------------|-----------|-------|------------|
| With Accounts | 1.000 | | | | | |
| Private Credit | 0.115 | 1.000 | | | | |
| Fin. Inst. Access | 0.354* | 0.388* | 1.000 | | | |
| Inflation | 0.141 | -0.132 | -0.043 | 1.000 | | |
| Trade | -0.159 | -0.001 | -0.157 | -0.003 | 1.000 | |
| Investment | -0.024 | -0.027 | 0.252* | -0.255* | 0.157 | 1.000 |

* shows significance at the 0.05 level.

As reported in Table 5, on average, 30% of population above 15 years have an account either with a mobile money operator or a financial institution in this sample. Kenya has the highest proportion of these account holders at 81%. Perhaps this is not surprising, considering that Kenya is a leading example of financial inclusion, mobile money inclusion in particular. Niger registered lowest account holding in 2011, at 1.5%, but the proportion increased to 15.5% by 2017. It also shows that, on average, only about 9% borrowed to start, operate, or expand a farm or business, with the highest country at 24%. The per cent is quite small, considering that these are the

type of activities that are expected to be buoyed by financial inclusion. Advocates of financial inclusion like Cabeza-García et al. (2019) expect financial inclusion to generate opportunities to start a business and succeed in such businesses. Perhaps, we might not rule out other impediments to borrow, such as collateral requirements which happen to be a key lending requirement in the region. About 25% of women, on average, have accounts in this sample. However, there are disparities in women financial inclusion across the sample. For example, while Kenya enjoyed a staggering 78% of women inclusion as at 2017, Niger had only 11%.

Table 5: Descriptive statistics

| Variable | Obs | Mean | Std.dev | Min | Max |
|-----------------------------------|-----|----------|----------|----------|---------|
| Bank Branches/100km2 | 76 | 3.402015 | 6.207091 | 0.028893 | 30.273 |
| Bank Branches/100,000 adults | 76 | 5.525182 | 6.03033 | 0.679035 | 33.9139 |
| With Account, 15+, % | 65 | 29.713 | 17.244 | 1.5217 | 81.5676 |
| With Account, 15+, %, female | 65 | 25.7578 | 16.3233 | 1.4519 | 77.7464 |
| Per Capita GDP, US\$ | 78 | 1737.976 | 1896.864 | 325.01 | 7997.07 |
| Borrowed from financial Instit. % | 42 | 8.8513 | 6.3654 | 2.5654 | 24.2565 |
| Investment | 78 | 24.6481 | 10.3216 | 4.0393 | 55.3627 |
| Country | | | | 1 | 26 |

Regression results

Table 6 summarizes the results of our multivariate analysis using the two measures of inclusive growth discussed in the foregoing section. Model 1 is quite parsimonious including only financial use variable, financial deepening variable, and country's level of income dummy, as well as year dummies. We gradually add the rest of the variables in the subsequent regressions of Table 6. Across all the equations, the results suggest that proportion of population holding accounts with either financial institution or a mobile money operator has a positive and significant relationship with inclusive growth. This suggests that the SSA region would experience more inclusive growth associated with more financial inclusion. The results also show that use of financial services by women, just as by men, has an important and positive relationship to inclusive growth. The results are consistent with the findings by Cabeza-García et al. (2019) where it was found that women having accounts at a financial institution was positively correlated with the country's economic development. This result would suggest that financial inclusion need to show gender parity. The study further reveals that considering the level of financial inclusion is still relatively low in the region, it entails that the SSA region has unexploited potential for improving its growth through inclusive finance. This is evident in model 2 of Table 6 which shows that at lower level of financial inclusion, the effect on inclusive growth is positive, significant and at increasing rate. However, at some high level of financial inclusion, marginal effect on inclusive growth tends to diminish. This is shown by a negative and significant

relationship of variable *With_Accounts*² which is a proxy for higher levels of financial inclusion. However, the results consistently show insignificant relationship between financial deepening as measured by credit to private sector as a per cent of GDP and inclusive growth. This outcome is comparable to the findings by Anand et al. (2013) who found measure of financial deepening (credit-to-GDP ratio) to have a negative impact on inclusive growth but not statistically significant. Their study explained the lack of insignificance as being due to the fact that inclusive growth encompasses both the pace and distribution of growth. Further explanation to this result could be that in developing countries like in SSA region, borrowing money from a financial institution is not easy for poor households and individuals. As Fafchamps (2013) argues, the poor are credit constrained due to lack of regular income with which to service a debt. It follows that the same individuals with regular income will have access to credit and this has the potential of widening the inequality gaps in many aspects. Therefore, credit to private sector would be important to GDP based economic growth, but limited and indirect influence on inclusive growth. The results also show that, on average, countries with higher level of income experience higher inclusive growth than their poorer counterparts, holding other factors constant. Put differently, higher economic growth is associated with higher inclusive growth.

Table 6: Regression results

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 (HDI) |
|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|
| VARIABLES | (Inclusive Growth) | (Inclusive Growth) | (Inclusive Growth) | (Inclusive Growth) | (Inclusive Growth) | (Inclusive Growth) | (Inclusive Growth) | |
| With Accounts | 0.552** (0.279) | 1.521*** (0.589) | | | 1.269*** (0.259) | 1.343*** (0.326) | | 0.0190*** (0.00628) |
| Private Credit | 0.115 (0.106) | 0.150 (0.0975) | 0.131 (0.107) | 0.105 (0.106) | 0.343 (0.596) | 0.361 (0.624) | | 0.0195 (0.0188) |
| Borrowed Fin. Inst | | | | | -0.913 (1.023) | -0.982 (1.002) | | |
| Country Dummy | 0.378** (0.150) | 0.289** (0.138) | 0.375** (0.150) | 0.386** (0.151) | 0.131 (0.183) | 0.168 (0.215) | 0.275 (0.178) | 0.0856*** (0.0326) |
| Inflation | | | | | 0.007 (0.766) | 0.049 (0.760) | -0.343 (0.466) | 0.00504 (0.0114) |
| Investment | | | | | 0.978 (0.653) | 1.006 (0.696) | 0.975* (0.503) | 0.0215** (0.00840) |
| Terms of Trade | | | | | 0.00215* (0.00120) | 0.00188 (0.00151) | -0.000373 (0.00172) | 8.98e-06 (1.78e-05) |
| With Accounts2 | | -1.174** (0.582) | | | | | | |
| With Accounts, Female | | | 0.504* (0.274) | | | | | |
| With Accounts, Male | | | | 0.541** (0.269) | | | | |
| Fin. Inst.Access | | | | | | -0.605 (1.484) | 0.934* (0.528) | |
| Year Dummy | YES | YES | YES | YES | YES | YES | YES | YES |
| Constant | -0.288*** (0.107) | -0.249** (0.120) | -0.270** (0.107) | -0.299*** (0.108) | -1.103*** (0.211) | -1.053*** (0.236) | -0.555* (0.287) | 0.427*** (0.0198) |
| Observations | 65 | 65 | 65 | 65 | 41 | 41 | 78 | 41 |
| Number of country1 | 24 | 24 | 24 | 24 | 22 | 22 | 26 | 22 |

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

While this study finds robust positive relationship between use of financial services and inclusive growth, the link between access and inclusive growth is rather weak.

Specifically, controlling for the use of financial services, financial access or availability in itself is not important for inclusive growth. This is why the financial access variable becomes significant, albeit at 10%, when the financial use variable is dropped in model 6 of Table 6. Indeed, in their experimental study in Kenya, Dupas et al. (2012) found out that despite availability of financial services, people were reluctant to use the services because, among other issues, they did not trust the banks, and their study concluded that simply expanding access is not sufficient to effectively achieve financial inclusion. Overall, the results therefore suggest that financial inclusion matter for inclusive growth in the SSA, size of financial sector does not guarantee inclusive growth and the impact of financial inclusion at very high levels is non-increasing.

Robustness tests

The study also used the United Nations’ Human Development Indicator as an alternative proxy of inclusive growth. The results from model 8 of Table 6 suggest that financial inclusion remain positive and significant despite the fact that the coefficient is smaller than when the inclusive growth computed in this study is used. The country dummy is also positive and significant, suggesting that, holding other factors constant, higher income countries tend to have higher inclusive growth as well.

We further use system GMM as part of the robustness checks. System GMM is chosen instead of difference GMM because after estimating Equation 2 using pooled OLS, fixed effects and difference GMM models but with lagged dependent variable $IG_{i,t-1}$ included as in Equation 3, the rule of thumb suggested the use of system GMM.

$$IG_{i,t} = \beta_0 + \alpha IG_{i,t-1} + \phi FD_{i,t} + \lambda X_{i,t} + \eta_c \eta_c + \gamma_t + u_{it}, \quad i=1, 2, \dots, N : t=1, 2, \dots, T$$

..... (3)

OLS estimate of α is designated as an upper bound and fixed estimate of α is considered as lower bound estimate. It was observed that the difference GMM estimate of α was below the fixed effects estimate of α , suggesting that the difference GMM estimate is downward biased and therefore system GMM should be preferred. The advantage of using the system GMM is that the model handles any potential endogeneity problems that might arise between the financial inclusion and inclusive growth. We use the lagged values of explanatory variables as instruments. However, due to data limitations for country-level data of account ownership in the SSA region, we use the access rather than use measure of financial inclusion in this model. However, we are making a big assumption here that access entails use. The financial access coefficient is significant at 5%. Further, the squared financial access variable is negative and significant. Clearly, the findings from Table 7 and model 8 of Table 6 suggest that the results in this study are robust even when subjected to different estimation techniques and model specifications.

Table 7: Robustness checks: GMM estimation

| | |
|-----------------------------|-----------------------|
| Inclusive Growth (-1) | 0.283*** (0.0985) |
| Financial Inclusion | 0.143** (0.0596) |
| Financial Inclusion Squared | -0.468*** (0.0902) |
| Trade | 0.0438 (0.0992) |
| Inflation | -0.126*** (0.0326) |
| Investment | 0.0865 (0.0548) |
| Year Dummy | YES |
| Sargan test (p-values) | 0.294 |
| Arellano & Bond AR(2) | 0.695 |
| Observations | 337 |
| Number of Countries | 26 |

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

5.0 Conclusion and policy implications

This study was set out to establish whether or not financial inclusion and depth are important for inclusive growth in the SSA region. The evidence shows that financial inclusion is one of the determinants of inclusive growth. This study has shown that, while financial services must be available or accessible in a country or region, this availability alone could be inconsequential to inclusive growth if individuals and institutions do not use such services. More importantly, the people should, not only be encouraged to use the financial services, but also there should be deliberate policies to minimize impediments to extensive use of financial services. The study has, however, failed to find evidence of a robust link between financial depth and inclusive growth in the SSA region.

The study has established diminishing marginal effects of financial inclusion on inclusive growth. The results are similar to Law and Singh (2014) who found out that the level of financial development is beneficial to growth only up to a certain threshold; beyond the threshold level, further development of finance tends to adversely affect growth. In fact, Sahay et al. (2015) found evidence suggesting that financial stability risks may increase when access to credit is expanded without proper supervision. Their findings claim that financial buffers decline with broader access to credit, other things being equal, and in countries with weaker supervision, the erosion of buffers is larger. A report by European Investment Bank of 2013 revealed that bank supervisory capacity is weak in many SSA countries, reflecting both under-resourcing of supervision activities and deficient legislative arrangements. SSA region, however, still has financial inclusion at relatively low level, with account ownership at 43%, way below an average of 63% for developing countries, together. It suggests that at the current level of financial inclusion, the region has ample space for financial inclusion to impact on inclusive growth at an increasing rate.

Given the results from this study, financial inclusion needs to be promoted—particularly at a time when coverage of inclusion remains low in the region. One of the ways of encouraging financial inclusion in this regard may include, but not limited to, minimization of tariffs on both bank and mobile money transactions to allow many people—including the marginalized—to be taken on board. People in the lowest income bracket make serious consideration before opening a bank account and mobile money account and more often than not, they fail to register or exit quickly after registration because of some tariffs and transactional

charges because these charges matter to a low-income individual. Another way of encouraging financial inclusion is to promote financial literacy. The people need to understand the advantages of having an account at a financial institution or making some savings. In most developing countries, including the SSA region, the task of financial literacy promotion has remained the responsibility of central banks. Perhaps, there is need for more players in this area, including ministry of education and other non-governmental agencies.

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